

REMARKS

Applicant has carefully reviewed the office action mailed August 9, 2006 and offers the following remarks to accompany the above amendments.

The drawings were objected to because the phrases “measuring power in the subset of optical signals using the power meter” and “passes a subset of the optical signals comprising of more than one individual wavelength to the one of the output ports at the same time” are not shown. Applicant has corrected Figure 1 of the drawings to show a subset of optical signals ($\lambda_1, \lambda_3, \dots \lambda_n$) 31 from an output port 32 of the wavelength select switch 18 to the power meter 20. Support for this correction is found in the Specification on page 4, lines 11-16. This amendment also shows that the individual wavelengths (λ 's) are directed to the power meter 20 at the same time.

Applicant has amended claims 1 and 12 to more clearly define the invention and not to overcome a prior art reference. No new subject matter had been added and no new search is required. Accordingly, such amendment should not be considered as limiting the claims in any manner. Further, Applicant has added new claims 24 and 25. Support for these claims can be found in the Specification on page 4, lines 13-16.

Before addressing the rejections, Applicant provides a brief summary of the present invention so that the remarks relating to the rejections are considered in the proper context. The present invention is directed to measuring optical signal power in an optical system using a wavelength select switch and a power meter. A portion of the power of each of the optical signals incident on the transmission medium of an optical system is diverted to the wavelength select switch, which selects a subset of more than one individual wavelength of such optical signals and outputs the subset to the power meter. The power meter measures the power level of the subset of optical signals. The measured power is the combined power of all the optical signals in the subset. The power measurement may, among other things, be displayed and/or used to control an optical amplifier in the optical system.

Claims 1, 3-5, 7, 10-12, 14-16, 17, and 18 were rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. Specifically, the Patent Office contends that the limitations of “...measuring a power level of the optical signal passed through the wavelength select switch using the power meter; passing a subset of the optical signals comprised of more than one individual wavelength through the wavelength select switch at

substantially the same time; measuring power in the subset of optical signals using the power meter;...” in claim 1 are not supported by the Specification. (Office Action mailed August 9, 2006, pages 3-4, emphasis in original). The Patent Office also contends that the limitations of “...a wavelength select switch having output ports to selectively pass a received optical signal to one of the output ports wherein the wavelength select switch passes a subset of the optical signals comprising of more than one individual wavelength to the one of the output ports at the same time...” and “...a power meter measures power in the subset of the optical signals; the power meter which receives an optical signal from an output...” in claim 12 are also not supported by the Specification. (Office Action mailed August 9, 2006, page 4, emphasis in original).

To reject a claim based on a lack of enablement, the Patent Office has the burden of showing that the specification in the application did not contain “sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention” at the time of filing of the application. MPEP § 2164.01. The Applicant satisfies the enablement requirement if the specification has at least one method for making and using the claimed invention. *In re Fisher*, 427 F.2d 833 (CCPA 1970). Additionally, the Patent Office has the burden to establish a reasonable basis to question the enablement provided for the claimed invention. *In re Wright*, 999 F.3d 1555 (Fed. Cir. 1994).

The requisite enablement for claims 1 and 12, and particularly for the emphasized portions of the Office Action as set forth above, is provided in several portions of the Specification. The Patent Office’s attention is respectfully directed to the Specification, at page 4, lines 3-7 which states: “[a]s shown in FIG. 1, the output port 34 of the wavelength select switch 18 connects to power meter 20. The wavelengths directed to output port 34 are fed to the power meter 20, which measures the power, i.e., the signal strength of the signals” (emphasis added). Also, continuing at lines 11-16 of page 4, the Specification states: “[a]lso, multiple signals (wavelengths) may be directed to the power meter from the wavelength select switch 18 at approximately the same time. In the case where multiple signals are directed to output port 34 of power meter 20, the measured power level of the signals is the combined power of all of the signals” (emphasis added). In addition, on page 7, lines 13-18 the Specification states: “...wavelength select switch 18 may direct a subset of signals 28 (i.e., more than one) to output port 34. In this case, power meter 20 measures the combined strength of those signals. Which

signals are directed to output port 34 is determined by wavelength select switch 18” (emphasis added). Accordingly, the Specification provides a method for making and using the claimed invention and, therefore, clearly satisfies the enablement requirement.

In view of the numerous references in the Specification, it is unclear exactly under what basis the Patent Office contends that the claimed invention was not enabled by the Specification. Nonetheless, since the Specification contains sufficient information regarding making and using the claimed invention, the Application “must be taken as being in compliance with the enablement requirement of 35 U.S.C. § 112, first paragraph”, unless the Patent Office doubts the truth or accuracy of any of the statements in the Specification. MPEP § 2164.04. In that event, it is incumbent upon the Patent Office to provide “acceptable evidence or reasoning which is inconsistent with the contested statement”. *In re Marzocchi*, 439 F.2d 220, 224 (CCPA 1971). The Patent Office has not provided any such evidence or reasoning. Accordingly, the Patent Office has not satisfied its burden under MPEP § 2164.04 and the rejection is improper. Withdrawal of the rejection of claims 1 and 12 based on 35 U.S.C. § 112, first paragraph is respectfully requested.

Claims 11, 12, 14-16, 17, and 18 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 depends from claim 1. Claim 12 is an independent claim with claims 14, 16, 17, and 18 depending therefrom.

With respect to claim 11, the Patent Office states that the recited limitation in claim 11 of “the optical system” lacked antecedent basis. In the amendment to the claims, Applicant amended the preamble to claim 1 to include the term “system” which provides the antecedent for claim 11 rendering the Patent Office’s rejection moot. Accordingly, withdrawal of the rejection of claim 11 under 35 U.S.C. § 112, second paragraph is respectfully requested.

The Patent Office contends that it is not clear what the following limitation of claim 12 means “...a wavelength select switch having output ports to selectively pass a received optical signal to one of the output ports wherein the wavelength select switch passes a subset of the optical signals comprising of more than one individual wavelength to the one of the output ports at the same time...” (Office Action mailed August 9, 2006, page 5, emphasis in original). The Patent Office interprets this limitation as reciting that “both groups of the signal output to the same port at the same time” and, therefore, questions the necessity for a wavelength select

switch. (Office Action mailed August 9, 2006, page 5, emphasis added). Applicant does not understand what the Patent Office means by “both groups”. There is only one group, that being the subset of the optical signals which comprise more than one individual wavelength. The wavelength select switch is necessary to select the subset of the optical signals and pass the selected subset to the output port. The wavelength select switch passes the individual wavelengths of the subset to the output port at the same time. Support for this is found in the Specification on page 4, lines 11-13 and page 7, lines 13-18. The Patent Office may be incorrectly interpreting the “received optical signal” as one group and the “subset of optical signals” as the other group. Although that interpretation is not supported by the Specification, amended claim 12 obviates such interpretation and moots the Patent Office’s rejection. Accordingly, withdrawal of the rejection of claim 12 under 35 U.S.C. § 112, second paragraph is respectfully requested. Inasmuch as the Office Action does not allege a separate basis for a 35 U.S.C. § 112, second paragraph rejection of claims 14, 16, 17, and 18, Applicant assumes that the rejection was directed to those claims based on their dependency to claim 12. Accordingly, for at least the same reasons set forth above with respect to claim 12, claims 14, 16, 17, and 18 comply with 35 U.S.C. § 112, second paragraph, and withdrawal of the rejection of claims 14, 16 17 and 18 is respectfully requested.

Claims 1, 3-5, 7, 10-12, and 14-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,873,795 B1 to Sugaya (hereinafter “Sugaya”) in view of U.S. Patent No. 5,986,782 to Alexander et al. (hereinafter “Alexander”). Applicant respectfully traverses. For the Patent Office to combine references in an obviousness rejection, the Patent Office must do two things. First, the Patent Office must establish *prima facie* obviousness by showing where each and every element is taught or suggested in the combined references. MPEP § 2143.03. Second, the Patent Office must state a motivation to combine the references. The motivation must be supported with actual evidence which cannot come from Applicant’s disclosure. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). Also, if one of the references must be modified, there has to be a desirability for such modification contained in that particular reference for the combination to be appropriate. *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

To support its rejection of claims 1, 3-5, 7, 10-12, and 14-18, the Patent Office cites to Figure 11 of Sugaya and, in pertinent part, alleges that “the wavelength select switch (fig.11,

combination of 30 and 31) passes a subset of optical signals (fig 11, the output signals from element 30 to element 31) at the same time, and a power meter (fig. 11, combination of PD 14 and PD 31) measures the power in the subset of the optical signals (fig. 11, PD 31); the power meter (fig. 11, PD14) which receives an optical signal (fig. 11, the signal from element 13 to element 14) from an output port (the output from element 13) and measures the power in the optical signal.” (Office Action mailed August 9, 2006, page 6). The Patent Office is incorrect in its characterizations of the elements shown in Figure 11 of Sugaya. Element 30 is a branching coupler (Sugaya, col. 12, line 46) and element 31 is a photodiode for converting the wavelength-division-multiplexed light to an electrical signal. (Sugaya, col. 12, lines 50-52). Therefore, the combination of elements 30 and 31 does not result in a wavelength select switch. Accordingly, Sugaya does not teach or suggest “receiving optical signals at a wavelength select switch”. In addition, since element 31 is a photodiode, Sugaya is outputting an electrical signal from element 31, not a subset of optical signals.

Further, the Patent Office alleges that element PD 14 is a power meter. Element PD 14, like element 31, is also a photodiode (Sugaya, col. 11, lines 36-38) and not a power meter as the Patent Office alleges. Accordingly, even assuming that the combination of elements 30 and 31 is a wavelength select switch, a point which Applicant does not concede, Sugaya does not teach or suggest “passing a subset of the optical signals comprised of more than one individual wavelength through the wavelength select switch at substantially the same time” nor does it teach or suggest a “power meter which receives optical signals from an output port and measures the power in the optical signals” as recited by claims 1 and 12, respectively. Therefore, Sugaya is deficient in teaching or suggesting each and every element of the claims.

The Patent Office combines Alexander with Sugaya solely to provide for a local alarm indicator. (Office Action mailed August 9, 2006, page 6). The combination of Alexander with Sugaya does not cure the above deficiency. Accordingly, the Patent Office has not shown where each and every element is taught or suggested in the combined references and, therefore, has failed to establish a *prima facie* case of obviousness. Claims 1 and 12 are, therefore, patentable, and withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1 and 12 is respectfully requested. Since claims 3-5, 7, 10, and 11 depend from claim 1 and claims 14-18 depend from claim 12, these claims are patentable for at least the same reasons. Notwithstanding this, certain of the dependent claims require special mention.

Claim 7 recites “successively directing other ones of the optical signals through the wavelength select switch to the power meter; and measuring power in the other optical signals using the power meter”. Claim 18 recites that “wavelength select switch cycles others of the optical signals to the output port and the power meter measures power in the others of the optical signals.” The Patent Office cites to Sugaya, col. 13, lines 35-51 as teaching or suggesting these claim elements. A close reading of the cited portion of Sugaya, though, shows that Sugaya is measuring power using the output of element 14, the photodiode. That output is a single electrical signal, not optical signals. (Sugaya, col. 13, lines 45-47). Therefore, Sugaya does not teach or suggest directing optical signals through a wavelength select switch to a power meter and measuring the power in the optical signals. As such, Sugaya fails to teach or suggest all of the elements of claims 7 and 18, and, accordingly, claims 7 and 18 are patentable for this additional reason.

Currently amended claim 10 recites “determining if the power in the optical signals has crossed a predetermined threshold; and triggering an alarm if the power in the optical signals has crossed the predetermined threshold.” The Patent Office cites to Alexander, fig. 2, local alarm 59 in support of the rejection of claim 10. This local alarm, though, is an alarm that activates on a predetermined signal-to-noise ratio of an optical signal, not on a power level. (Alexander, col. 5, lines 32-35). Therefore, Alexander does not teach or suggest each and every element of claim 10 and, accordingly, claim 10 is patentable for this additional reason.

Currently amended claim 11 recites controlling an optical amplifier in accordance with the power of the optical signals to regulate optical power of the optical signals on the transmission medium. The Patent Office cites to Sugaya, fig. 11, combination of 25, 26, 27, 28, and 29 and col.3, line 61 to col. 4, line 4 in support of the rejection. Sugaya, though, controls the optical amplifier by control of a single wave, not optical signals. (Sugaya, col. 4, lines 1-2). Therefore, Sugaya does not teach or suggest each and every element of claim 11 and, accordingly, claim 11 is patentable for this additional reason.

Claim 17 recites a dense wavelength division multiplexing system (DWDM). Sugaya and Alexander teach and suggest a wavelength division multiplexing system (WDM) and not a DWDM system. The Patent Office contends that “one of ordinary skill in the art at the time when the invention was made would understand that the WDM of Sugaya or Alexander reads [on] the claimed DWDM” ...and...”the claimed limitation does not result in a structural

difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art.” (Office Action mailed August 9, 2006, page 7). Evidentiary support for a motivation to modify a reference is required when the articulated reason is based on the knowledge of one of ordinary skill in the art. *In re Gordon* 733 F2d. 900,902 (Fed. Cir. 1984). The Patent Office has not shown where evidence of motivation for the modification of WDM to DWDM is found in either or both Sugaya or Alexander. Therefore, such modification is improper and a rejection based thereon is improper. Neither Sugaya nor Alexander teach or suggest each and every element of claim 17, and, accordingly, claim 17 is patentable for this additional reason.


The Patent Office admits that Sugaya “does not specifically teach displaying an indication of the optical signal power in the optical signal on a monitor to a system administrator” but alleges that such is well known in the art. (Office Action mailed August 9, 2006, page 6). To support this allegation, and its rejection of the claims, the Patent Office cites to Alexander, fig. 2, local alarm 59. To properly combine references the requisite motivation for such combination must be evident in the references to be combined. Not only must the Patent Office articulate a motivation for combining the reference with another reference to show obviousness but, also, the Patent Office must support each articulated motivation with actual evidence found in the references. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). As Applicant states above with respect to claim 10, Alexander does not teach the alarm recited by the claims. Not only does the combination of Alexander with Sugaya not teach or suggest that claim limitation, it also cannot and does not provide the support for the Patent Office’s allegation that such element is well known in the art nor does it provide the requisite evidence for the combination of Alexander with Sugaya. Since the Patent Office has not shown where such evidence is found in either Sugaya or Alexander, the allegation of that element being well known in the art is not supported and the combination is improper. Accordingly the rejection is improper, and the Patent Office has not established a *prima facie* case of obviousness based on Sugaya or Alexander separately or in combination.

Accordingly, withdrawal of the rejection of claims 1, 3-5, 7, 10-12, and 14-18 under 35 U.S.C. § 103(a) is respectfully requested.

The present application is now in condition for allowance and such action is respectfully requested. The Examiner is encouraged to contact Applicant's representative regarding any remaining issues in an effort to expedite allowance and issuance of the present application.

Respectfully submitted,

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